CYCLING SAFETY IN NEW ZEALAND:

A CORONIAL REVIEW

11 November 2013

Coroner Gordon Matenga

Acknowledgments and Introduction

[1] I commence by thanking all of those who have contributed to this review. I would especially like to acknowledge the families and friends of Jane Mary Bishop, Antony David Chapman, Wilhelm Alois Muller, Mark Andrew Ferguson, Kay Heather Wolfe, Patricia Anne Fraser, Rex Stewart Dalzell, Benjamin Patrick Lawless, Josephine Margaret Holmes, Nigel Graham Townley, Brennan Lee Sharp, John William Mayers and Rochelle Margaret Roozen from whose tragic deaths, this review arises. I acknowledge also, the families of the 94 members of our community that have died in cycling crashes during the period 1 July 2007 to 30 September 2013. It is my hope that what follows will, as so eloquently phrased by the Deputy Chief Coroner for Ontario, Dan Cass, *" ... give voice to those cyclist who have lost their lives ..."*[1] There are lessons for us to learn which will enable us to make our roads safer.

[2] I am grateful for those who took the time to make submissions. I have been greatly assisted by the many submissions filed not only from family members of those who died but also by concerned members of the public and interest groups. I acknowledge the contributions from:

Peter King on behalf of The New Zealand Automobile Association;

Dr Alexandra Macmillan, Senior Lecturer and Public Health Physician, Auckland University;

Patrick James Morgan, Project Manager for Cycling Advocates Network of New Zealand;

Robert Charles Bailey;

Bevan Gary Woodward, Transport Planner and former Chair of Cycle Action Auckland;

Barbara Elizabeth Cuthbert, City planner representing Cycle Action Auckland (part of the Cycling Advocates Network);

Kevin Grant Hague MP;

Jennifer Lawless of Wellington;

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[1] "Cycling death Review A Review of All Accidental Cycling Deaths in Ontario from January 1st, 2006 to December 31st, 2010" Office of the Chief Coroner for Ontario.

Sridhar Ekambaram representing Cycle Aware Wellington (part of the Cycling Advocates Network);

Simon Roger Kennett Active Transport and Road Safety Co-ordinator, Greater Wellington Regional Council;

Frederick John MacDonald;

Atom S Emet, Road Safety Advocate;

Dr Glen Francis Koorey, Senior Lecturer and Transportation Engineer, University of Canterbury, Christchurch;

Dr Claire Simpson representing Spokes Canterbury (part of the Cycling Advocates Network);

Peter Cook of Christchurch;

Jacob Humphreys of Auckland;

NZ Police through the Serious Crash Investigators from the Auckland, Counties Manukau, Waikato, Palmerston North, Tasman and Christchurch Districts.

[3] Dr Claire Simpson at the hearing in Christchurch submitted that, *" ... one fatality on the roads is one too many ..."*[2] I agree. Deaths resulting from incidents while cycling are, in my view, preventable. This opinion was not challenged by completing this review but reinforced. With very few exceptions, deaths from cycling incidents are not accidents, in the sense that what occurs happens due to the actions or inactions of the parties involved. I prefer to use the term "crash" as it more properly reflects the nature of what took place. The object then, of this review, is to look at the thirteen specific cases of cycling crashes, to see if there were any common factors which upon analysis, would give rise to comment or recommendations which could reduce the chances of further cycling deaths occurring in the future.

[4] It was submitted by Dr Koorey that the sample of thirteen cases was too limited. Dr Koorey made submissions based on work he did on an enlarged sample size. This he

[2] Inquiry into the deaths of Josephine Margaret Holmes, Nigel Graham Townley, Brennan Lee Sharp, John William Mayers, Coroners Court Christchurch, 11 June 2013 at page 29 Notes of Evidence.

submitted would be of more assistance to the review by providing a better understanding of some of the key issues. The evidence he presented was based on 84 fatalities on New Zealand roads between January 2006 and December 2012. Dr Koorey submitted that a cycling fatality in New Zealand is not inherently dangerous but is relatively rare. He submitted that on average, *"... we have ... more than two million hours of cycling for every death that we do have in New Zealand."*[3] Of course, as pointed out above, even one death from a cycle crash is one too many and Dr Koorey acknowledged that we could, as a nation, do better.

[5] I have taken Dr Koorey's submissions in relation to the sample being too limiting on board and as a result have obtained data from CMS (Case Management System - the database used by the Coronial Services Unit) to extend the base of information available to me. I will proceed initially however by looking firstly at the thirteen specific cases assigned to me by the Chief Coroner and then I will look at the wider picture provided by the extended data.

Analysis

[6] Of the 13 cases the following points were noted:

(i) 8 (61.5%) were male and 5 (38.5%) were female;

(ii) The average age of the cyclists was 46.8 years. The youngest being 24 and the oldest 75 and the median being 45;

(iii) In 7 (53.8%) cases the cyclists were riding for recreational purposes;[4]

(iv) In 6 (46.2%) cases the cyclists were riding for transport;[5]

[3] Inquiry into the deaths of Josephine Margaret Holmes, Nigel Graham Townley, Brennan Lee Sharp, John William Mayers, Coroners Court Christchurch, 11 June 2013 at page 17 Notes of Evidence.

[4] I have classified "recreational purposes" to include training for road cycling races or road cycling specifically for exercise rather than transport.

[5] These cases are where riding for transportation is the dominant purpose of the fatal ride.

(v) 3 (23.1%) of the cases were single cycle crashes in the sense that no other person was involved. In each case the cyclist lost control and crashed causing fatal injuries;

(vi) 10 (76.9%) involved collisions with motor vehicles;

(vii) In 1 of those collisions the cyclist was intoxicated and fell off his bicycle onto the roadway and remained there on the roadway either because of his intoxication or because he was unconscious due to the fall. This could not be determined at inquest. A car came around the corner and ran over the cyclist causing the injuries which lead to death. It is arguable whether this case should be classified as a cycling crash fatality. Although the collision was between the car and the deceased, the deceased would not have been on the road had he not been cycling for transport. On this basis, the case is correctly, in my view, classified as a cycling fatality;

(viii) 1 (7.7%) of the motor vehicles could be described as a heavy motor vehicle being a small bus / camper van;

(ix) Of the 10 cases involving collisions with motor vehicles, 3 (23.1%) were due to cyclist error and 7 (53.8%) were due to driver error;

(x) In the case of 3 deaths the motorist has lost control of the motor vehicle and collided with the cyclists;

(xi) In 12 cases the cyclists were wearing a helmet;

(xii) In 1 case the cyclist was not wearing a helmet. This cyclist was riding for transport and was intoxicated;

(xiii) In 1 case the cyclist has failed to give way to a motor vehicle;

(xiii) In 5 cases the motorist has failed to see the cyclist. Of these cases, 3 were wearing hi-vis reflectorised clothing. 2 cyclists were not wearing hi-vis or reflectorised clothing;

(xiv) Of the 13 cases, 10 cyclists were wearing hi-vis clothing. 3 were not wearing hi-vis clothing;

(xv) Roadway design was found to contribute to death in 1 case.

[7] On this analysis, some generalised statements can be made, such as:

(i) More men than women die from cycling crashes;

(ii) Middle aged men who cycle for recreational purposes are most at risk;

(iii) A collision with a motor vehicle is the highest single cause of cycling fatalities;

(iv) Cyclists are wearing appropriate gear such as helmets and hi-vis clothing;

(v) Even though cyclists are wearing appropriate clothing / gear, the ability of the driver to see and recognise a cyclist remains an issue;

(vi) Roading design plays a minor role in the cause of cycling fatalities;

Further Analysis

[8] I have been provided with data from CMS of all cycling fatalities from 1 July 2007 to 30 September 2013. From that raw data, I have drawn the following:

(i) There were a total of 94 deaths in New Zealand at an average of 15 per year;

(ii) 72 (76.6%) were male and 22 (23.4%) were female;

(iii) The average age of the cyclists was 46.5 years with the youngest being 6 and the oldest 93. The median age was 48.5;

(iv) The age spread of the fatalities was:

Age in years	Number of fatalities
0 – 12	5
13 – 20	12
21 – 30	6
31 – 40	13
41 – 50	18
51 – 60	13
61 – 70	18

71 – 80	6
81 – 90	2
91 -	1

(v) 22 (23.4%) of the deaths occurred during the first quarter of the calendar year (Jan, Feb, Mar), 20 (21.3%) occurred during the second quarter (Apr, May, Jun), 20 (21.3%) during the third quarter (Jul, Aug, Sep) and 32 (34%) in the fourth quarter (Oct, Nov, Dec).

(vi) In 40 (42.5%) cases the cyclists were riding for recreational purposes. Of these 40, 13 (13.8%) were BMX / mountain biking crashes;

(vii) In 54 (57.4%) cases the cyclists were riding for transport.[6] This includes 12 (12.8%) who were riding as a leisure activity;

(viii) 35 (37.2%) of the cases were single cycle crashes. In each case, the cyclist lost control and crashed causing fatal injuries. This also includes 1 case of a cyclist colliding with a pedestrian and 1 cyclist colliding with a dog;

(ix) 59 (62.8%) involved collisions with motor vehicles. In 12 (12.8%) cases the collision was with a heavy motor vehicle such as a truck or bus and 1 case of a cyclist being struck by a train;

(x) Of the 59 cases involving motor vehicles, 20 (21.3%) were due to cyclist error and 34 (36.2%) were due to driver error. In 5 cases there was insufficient data available to make a determination[7];

(xi) Out of the 94 cases 55 (58.5%) were due to cyclist error;

[9] The inclusion of the additional data has been helpful in some ways and unhelpful in others. The larger sample size has illuminated the statistics to a degree but I am not able to conduct any further analysis of the facts of each case without a careful examination of each closed file to extract the facts as found by the Coroner. Difficulties with data capture are

[6] In some cases there was insufficient information available to categorise the purpose of the cycling. In these cases transport was used as a default category.

[7] The CMS data included cases for which no Coroner had yet made Findings as to cause and circumstances of death.

apparent. For example, a number of the cycles versus motor vehicle crashes were the subject of a prosecution. In those cases the Coroner is required to adjourn the inquiry pending completion of the prosecution.[8] The Coroner then has a discretion to either resume the inquiry or not resume it but rely on the successful prosecution for proof of the requirements of section 57 Coroners Act 2006. Information which is helpful to this review, such as the wearing of hi-vis or reflective clothing, the wearing of helmets, explanations given by the motorist giving reasons for errors of judgment, whether the roading design or lighting in the area had any part to play in the cause of the crash and other like factors, have not been uniformly recorded in the Cor 9 Certificates issued by the Coroner or otherwise captured by CMS. A more in-depth study would be required to provide the best information.

[10] CMS has captured recommendations made. These include the following (as paraphrased by me):[9]

(i) The repositioning of a traffic island in Christchurch;

(ii) The establishment of cyclist education programs in schools, especially primary schools;

(iii) Enhanced driver licensing education in regards to cyclists;

(iv) Law changes regarding:

  (a) The compulsory wearing of hi-vis / reflectorised clothing by all cyclists;

  (b) The compulsory use of cycle lanes by all cyclists where they are provided;

(v) Changes to the Petone interchange;

(vi) A review of the standard for cycling helmets including colouration of helmets;

(vii) A review of the road layout at Riddell / Glover Roads, Glendowie, Auckland by Auckland Transport and the fencing of Glover Park dog exercise area;

(viii) A pedestrian crossing to replace a Kea crossing outside Reignier School on Guppy Road, Napier;

[8] Sections 68, 70 Coroners Act 2006

[9] See appendix for a complete list of the inquiries in which recommendations were made. A copy of the recommendations made in each case is available through the Office of the Chief Coroner.

[11] Some of these recommendations listed above (such as 10(i), (v), (vii) and (viii)) were made in respect of the particular circumstances of death which were presented to the Coroner concerned and do not require further comment, other than to serve as a reminder to those parties to whom the recommendations are addressed, that the recommendations have been made. The remaining recommendations (10(ii), (iii), (iv), and (vi)) have more general application and have been made on more than one occasion by more than one Coroner. I have not seen any evidence that any of the recommendations made have been considered by the New Zealand Transport Agency or the Ministry of Education.

[12] Based on the additional data provided by CMS and revisiting the generalised statements of paragraph [7] only the following two statements can be confirmed:

(i) More men than women die from cycling crashes;

(ii) A collision with a motor vehicle is the highest single cause of cycling fatalities.

The following generalised statements can be added:

(iii) Middle aged men are most at risk from being killed in a cycle crash;

(iv) Most cycling deaths occur during the warmer months of the year.

The remaining statements can neither be confirmed nor rejected until a further in-depth study of the files can be completed.

[13] The recommendations listed above, support the suggestion that the wearing of hi-vis / reflectorised clothing, and roading design, are perennial issues which must be addressed.

[14] One final item to mention from the extended data was the surprising statistic that of the 94 cases, 55 of them (58.5%) were due to cyclist error. This is contrary to every submission made to me which suggested that motorists were deemed to be responsible in most cycle crashes[10]. The data supports the submission that motorists are responsible for 57.6% of all deaths following a collision with a cyclist (ie 34 of 59 deaths) and to that extent, the submission holds true to the data.

[10] See for example the submission of Peter King on behalf of The New Zealand Automobile Association at page 5.

Submissions Received

[15] A number of submissions were made in the course of the Inquiry, some of which were specific to the facts of the case I was hearing at the time, but many were made in relation to the improvement of cycling safety in general. In Palmerston North the wearing of hi-vis clothing was first raised. Family of Patricia Anne Fraser submitted that making it compulsory for cyclists to wear clothing that would make cyclists more visible to motorists would make cycling safer. This submission was echoed, to some extent, around the country. In Auckland it was suggested that the compulsory use of cycle lanes should become law. Both of these submissions, it was submitted by members of the Cycling Advocacy Network, although at first blush may appear as good ideas, would in fact become a barrier to people cycling. It was submitted that cyclists are safer on the roads if there are more people cycling and anything which could reduce the numbers of cyclists on the roads should therefore be resisted. Along this same line, it was suggested that the law requiring the compulsory wearing of helmets should be removed, as the requirement to wear a helmet was keeping people from cycling.

[16] Another suggestion was made that rumble strips on all roads would prevent cyclist being struck from behind as the strips would make the motorist aware they had drifted too far left and refocus the driver's attention on the road ahead. When I raised this possibility with one of the cyclists involved in the crash in the Waikato which killed 3 of his group, I was told that rumble strips can be a danger to cyclists as they can cause a rider to lose balance and crash.

[17] The Lawless Inquiry in Wellington highlighted ambiguity in the law relating to the use of lights when cycling at night. Is it permissible for example, for the required front white light to be affixed to the cyclist's helmet or must the light be fixed to the front of the cycle? At what distance should the light be visible? Should the light be a steady beam or is a flashing light allowable? Which is more effective? Do the standards as presently set need revisiting?

[18] Other issues raised were as follows (as paraphrased by me):

(i) Investment in cycling is required to build a quality cycling infrastructure ie connected cycle ways in all major centres, sealed shoulders on key rural roads and cycle friendly areas with lower traffic speeds and volumes;

(ii) Government funded cycle training for all school children and on road training for adults;

(iii) A public education programme designed to upskill motorists and cyclists to share the road together safely;

(iv) Tougher penalties and enforcement of those penalties, for those who cause injury to road users;

(v) Offenders against our road traffic laws should be required to undertake road sharing courses;

(vi) Improve road design by giving higher priority to cycle safety. This may include the reallocation of existing road space to create physical segregation of cyclists from other road users;

(vii) The NZTA cycling infrastructure guidelines be replaced by a set of consistent best practice standards to provide clearer direction to local government and planners, and increase accountability for cycling safety;

(viii) The mandatory use of side under-run protection for all trucks.

Discussion

[19] Amongst the myriad of research papers and resources I was referred to was the Crash Factsheet 2012 published by the Ministry of Transport in relation to cyclists. After considering the information contained therein, it became clear to me that in considering only the fatality statistics as I have since 1 July 2007, while I may have obtained a view of the bigger picture by increasing the sample size, I am not getting the clearest picture of the true state of cycling safety on NZ roads. The clearest picture is obtained by considering not just the cycling fatalities, but all cases where an injury has occurred while cycling. I say this in the context that the problems identified above are clear for all to see, but the extent of those problems are brought even more sharply into focus when the fatalities are considered alongside all crashes which result in an injury. Cycling deaths are preventable. Even one

death is one too many but the fatalities are only part of the much larger cycling crashes story.

[20] I have carefully considered if it is appropriate for me to make any recommendations as a result of this review. It would be easy for me to recommend for example, that cyclists should be more visible to other road users by making it compulsory to wear hi-vis clothing, that Standards NZ should review the standards for cycle helmets and lights, that education courses should be run for children and adults, or that all trucks should have side under-run protection installed. Each of these measures would address an issue raised by the circumstances of the cases considered in this review. However, the thrust of the submissions from the various members of the Cycling Advocates Network, was that a rethink of cycling safety in New Zealand is required, that attitudes both of motorists to cyclists and cyclists to motorists need to change and that the making of such recommendations would not in fact, result in making the roads safer for all road users. Whilst that argument does seem counterintuitive it has given me cause to pause and reconsider the best way forward. In the course of my deliberations I was impressed by the way in which the Office of the Chief Coroner for Ontario completed a cycling death review for the period 1 January 2006 to 31 December 2010. In that review, a review team was brought together which included two senior Coroners, a research analyst and a scientific advisor. 129 cases were closely examined by the team. A literature review was conducted, a data extraction tool was developed and an expert panel was made up from stakeholders who shared a unique interest and expertise in cycling and road safety. This panel was used to assist in the generation of recommendations. I particularly noted that the expert panel and project team members included representatives of the City of Toronto, Ministry of Municipal Affairs and Housing and Ministry of Transportation. In short, it was a carefully considered and well funded review which was well supported by local and central government and supported by appropriate expert assistance. I note that the NZTA chose not to make submissions to this review and so central government have had no input whatsoever. Having consulted the NZTA website and read the NZTA's *Safer Journeys* strategy I was surprised that I did not hear formally from NZTA. There has been limited local body engagement in the course of this joint inquiry, in the Wellington and Auckland hearings and in those cases, the involvement was limited to the specific circumstances of each case. I noted in the course of my readings, that various interest groups do give advice to local bodies when invited (such as in Auckland, Wellington and Christchurch), but otherwise are left to promote cycling safety as they are able.

[21] As best as I can determine, there has been no opportunity in New Zealand, for a group such as was brought together for the Ontario Cycling Deaths Review, to make a similar contribution. The factors I have discussed above and this review present me with a unique opportunity to learn from the Ontario experience and as a result, I have reached the conclusion that the best recommendation I can make to improve cycling safety in this country and to prevent further cycling deaths, is to recommend that an expert panel, drawn from stakeholders with a unique interest and expertise in cycling and road safety, be established to consider the available evidence and together, recommend the way forward for safer cycling in New Zealand. Such a course will ensure that the appropriate level of expertise is given to what is a complex problem but it is important to ensure that the spectrum of views from across the community is represented. It is appropriate in my view, for this "think tank" to be funded and lead by the NZTA, thereby engaging central government. There are submitters to this review that would make a useful contribution such as, Dr Glen Koorey, Dr Alexandra Macmillan, representatives of the Cycling Advocates Network, Peter King (AA) and others. The Chief Coroner or his representative would also be a useful addition to this group and I record my willingness to continue to be involved either as the Chief Coroner's representative or in some other capacity.

Recommendation

[22] For the reasons set out above and pursuant to sections 3(1)(b) and 57(3) Coroners Act 2006 I recommend that:

(i) The NZTA convene an expert panel drawn from stakeholders with an interest and expertise in cycling and road safety, to consider the evidence gathered by this Review and such other evidence as it considers necessary, with a view to compiling a list of recommendations to central and local government which will improve cycling safety in New Zealand and prevent further cycling crashes and fatalities.

Coroner Gordon Matenga

Appendix

Inquiries where recommendations have been made by Coroners:

CSU-2009-CCH-000169 Colin Barry Chambers

CSU-2008-CCH-000295 Graham Thomas Condon

CSU-2008-CCH-000059 Jennifer Marie Barnes

CSU-2008-WGN-000050 Keegan Mason Lawrence

CSU-2008-DUN-000245 Zion Wayne McCreadie

CSU-2008-WGN-000310 Stephen Fitzgerald

CSU-2008-CCH-000725 Alice Swainson Baker

CSU-2009-DUN-000093 David Edward John Hall

CSU-2009-DUN-000232 Alan Richard Kerr

CSU-2010-000490 Douglas Carter

CSU-2010-HAS-000109 Leo Robert Leslie Te Kira

CSU-2011-HAS-000058 Joshua Paul Bennie

CSU-2011-PNO-000407 Donna Guy

CSU-2012-DUN-000094 Ian Grant Scott